AMENDMENTS TO THE SPECIFICATION

Amend paragraph [0001] as follows:

[0001] This nonprovisional application claims priority under 35 U.S.C. § 119(a) on Patent Application No. ~~2002-223687~~ 2002-223678, filed in Japan on July 31, 2002, the entirety of which is incorporated herein by reference.

Amend paragraph [0006] as follows:

[0006] In order to achieve the aforementioned object, the present invention provides an engine control apparatus for a motorcycle including an overturn detecting unit for detecting overturning by an acceleration sensor having a detection ~~shaft~~ axis disposed laterally of the vehicle body. An engine stopping unit is provided for stopping the engine in response to detection of the overturning by the overturn detecting unit. The overturn detecting unit is constructed to determine that the motorcycle has overturned when the number of times the acceleration sensor detects average values of outputs exceeding an overturn threshold reaches a first preset value. In addition, a restoration unit is provided for releasing the engine stop operation by the engine stopping unit when the number of times the acceleration sensor detects outputs below a restoration threshold reaches a second preset value after the overturning of the vehicle body is detected. The second preset value is smaller than the first preset value.

Amend paragraph [0018] as follows:

[0018] ~~Figure 5 is a drawing~~ Figures 5(a), 5(b) and 5(c) are drawings showing decompositions of forces acting on a vehicle body;

Amend paragraph [0021] as follows:

[0021] Referring now to the drawings, the present invention will be described in detail. Figure 2 is a block diagram showing a principle portion of a motorcycle to which an engine control apparatus of the present invention is applied. In Figure 2, an engine 1 is provided with an ignition plug 3 on a cylinder 2. An inlet pipe 4 is provided with a fuel injection valve 5. The ignition plug 3 is connected to an ECU 7 via an igniter 6. The fuel injection valve 5 is connected to a fuel tank 10 via a fuel pump 8 or a filter 9. The fuel injection valve 5 and the fuel pump 8 are also connected electrically to the ECU 7. The ECU 7 includes a microcomputer, which allows the igniter 6 to generate a high pressure in accordance with an ignition timing, a fuel injection timing, and the like determined based on signals detected by a sensor, not shown (engine rotational angle sensor, throttle sensor, ~~PB~~ <u>intake manifold pressure (PB)</u> sensor, etc.) for detecting the state of rotation of the engine. The microcomputer also allows the fuel injection valve 5 to open and close. A battery 11 is provided as a control power source for the ECU 7, or a power source for electric equipment of the fuel pump 8, the fuel injection valve 5, and the like.

Amend paragraph [0025] as follows:

[0025] Figure 3 is a cross sectional perspective view of a principal portion of the ECU <u>7</u> illustrating an arrangement of the acceleration sensor 12. In Figure 3, a substrate 13 is disposed in a hard case 7a of the ECU 7, and the capacitance type acceleration sensor 12 is secured to the substrate 13 together with other electronic components. I/O connectors 7b, 7c are provided on the side surface of a case ~~7~~ <u>7a</u>. The ECU 7 is mounted on the vehicle body in such a manner that the detection ~~shaft~~ <u>axis</u> of the acceleration sensor 12 lays laterally of the vehicle body. By

arranging the detection ~~shaft~~ axis so as to lie laterally of the vehicle body, the acceleration sensor 12 becomes dull with respect to the pitching action (swinging motion in the fore-and-aft direction) of the vehicle body during travel, and lateral inclination of the vehicle body may be accurately detected.

Amend paragraph [0026] as follows:

[0026] By arranging the acceleration sensor 12 with the detection ~~shaft~~ axis laid laterally of the vehicle body, turning travel with a large banking angle and overturning may be distinguished. The reason will be described later in conjunction with Figure 5.

Amend paragraph [0028] as follows:

[0028] A front fork 31 is rotatably supported by the head pipe 27. A steering handle 32 is connected to the top of the front fork 31, and a front wheel WF is attached to the lower end thereof. A rear fork 33 for supporting a rear wheel WR is supported by the rear portion of the main frame 28. A pair of cushion ~~unit~~ units 34 may be provided between the rear wheel WR and the seat stay 29.

Amend paragraph [0031] as follows:

[0031] A throttle body 38 is provided on the intake port side, and an air cleaner box 39 is disposed above the throttle body 38. The aforementioned ECU 7 is disposed in the air cleaner box 39. The ECU 7 is disposed with the aforementioned I/O connectors 7b, 7c facing upward and the detection ~~shaft~~ axis lying laterally of the vehicle body as described above.

Amend paragraph [0033] as follows:

[0033] ~~Figure 5 is a drawing~~ Figures 5(a), 5(b) and 5(c) are drawings of the motorcycle viewed from behind. Figure 5(a) shows a state in which the vehicle is standing upright, Figure 5(b) shows a state in which the vehicle is turning at a large banking angle, and Figure 5(c) shows a state in which the vehicle is overturned. Acceleration components that act on the acceleration sensor 12 provided on the vehicle will be described in each state.

Amend paragraph [0037] as follows:

[0037] In this manner, the component in the direction x of the accelerations in both cases are significantly different between the case in which the vehicle is turning and the case in which the vehicle is overturned even when the inclinations of the vehicle body are almost the same. Therefore, when the acceleration sensor 12 is installed with its detection ~~shaft~~ axis laid horizontally, the inclination of the vehicle body during turning may be clearly distinguished from the inclination of the vehicle body when being overturned based on the detected output of the acceleration sensor 12.

Amend paragraph [0044] as follows:

[0044] In Step S10, whether or not the difference between the sensor output when standing upright DWNϕ and the average DWNave when the vehicle is standing upright is larger than the predetermined overturn threshold is determined. If the determination is affirmative, the procedure goes to Step S11, and the overturn counter is incremented. In Step S12, whether or not the value of the overturn counter exceeds the preset counter value "C1" is determined. The

value of the preset counter value "C1" is preferably 4 or 5. When the answer of Step S12 is affirmative, in Step S13, the overturn flag is set to "1" to store that the vehicle body is in the overturned state. In Step S14, the restoration counter is reset to "0". In Step S15, the engine 1 is stopped. More specifically, power supply to the igniter 6 is stopped. Then, the fuel injection valve 5 is stopped from driving. It is preferable to stop the fuel pump 8 in response to stopping of the fuel injection valve 5.